

Title (en)
METHOD FOR CONVERTING ELECTRIC SIGNALS INTO ACOUSTIC OSCILLATIONS AND A MULTI-FUNCTIONAL ELECTRIC GAS-KINETIC TRANSDUCER

Title (de)
VERFAHREN ZUR UMWANDLUNG VON ELEKTRISCHEN SIGNALEN IN AKUSTISCHE SCHWINGUNGEN UND ELEKTRISCHER MEHRFUNKTIONS-GAS-KINETIK-WANDLER

Title (fr)
PROCÉDÉ DE CONVERSION DE SIGNAUX ÉLECTRIQUES EN OSCILLATIONS ACOUSTIQUES ET TRANSDUCTEUR ÉLECTRO-GAZO-CINÉTIQUE POLYFORME

Publication
EP 2090379 A1 20090819 (EN)

Application
EP 06843963 A 20061110

Priority
RU 2006000589 W 20061110

Abstract (en)
The invention relates to electroacoustic engineering, in particular to methods for converting electric signals into acoustic oscillations and to electroacoustic transducers. The method for converting electric signals into acoustic oscillations comprises exposing an oscillating system that is a gas medium pre-structured by a static electric field to an electric/electromagnetic field modulated in strength by an alternating electric signal in accordance with the shape and frequency of the modulating signal, and converting the energy of said field into acoustic energy to be released thereupon into the ambient. An electric gas-kinetic transducer developed to perform this method comprises a dielectric working element and at least two current-conducting plates that can be connected to the pole terminals of a direct voltage source and to a source of alternating electric signals. The operating principle of the transducer consists in converting the energy of the electric/electromagnetic field into the kinetic energy of gas, and then the kinetic energy of gas into acoustic radiation. This work is performed by gas filling nano/micro-sized channels of the capillary pore matrix of the working element under the effect of the external electric/electromagnetic field. An electric signal is converted into acoustic oscillations without involving mechanical intermediary devices, making it possible to avoid amplitude-phase and amplitude-frequency distortions and to reach a matching between the properties of the oscillating system, or a pre-structured gas medium, and the properties of the transmitting medium, or air, thereby improving the efficiency of conversion.

IPC 8 full level
B06B 1/06 (2006.01); **H02M 9/00** (2006.01)

CPC (source: EP US)
H04R 23/004 (2013.01 - EP US)

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 2090379 A1 20090819; **EP 2090379 A4 20131106**; CN 101573189 A 20091104; CN 101573189 B 20120509; RU 2009109753 A 20101220; US 2010046789 A1 20100225; US 8085957 B2 20111227; WO 2008057004 A1 20080515

DOCDB simple family (application)
EP 06843963 A 20061110; CN 200680056861 A 20061110; RU 2006000589 W 20061110; RU 2009109753 A 20061110; US 31241206 A 20061110